

# ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH  
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Keel laying last Monday (Dec. 2) of U.S. Navy's nuclear powered guided missile cruiser, U.S.S. Long Beach, marked first step in the Navy's conversion of its surface fleet to nuclear powered vessels. Quincy, Mass., yards (Fore River) of Bethlehem Steel Co. are constructing this 11,000-ton ship, which will be powered by a nuclear reactor plant designed and developed by Westinghouse Electric Corp. and six turbine-generator sets built by Westinghouse. Other propulsion machinery will be furnished by General Electric Co. Estimated total cost of the ship is placed at \$87.5 million. (Other BUSINESS NEWS, p. 5 this LETTER.)

Distribution of one share of High Voltage Engineering Corp. common stock is being made as a dividend by American Research & Development Corp. to its stockholders for each fifteen shares of AR & D stock held. American Research, a venture capital company which initially financed High Voltage, accelerator manufacturer, holds some 17.7% of High Voltage common. Previous distribution by American Research was in 1956 when one share of High Voltage was given as dividend for each ten AR & D shares held. (Other FINANCIAL NEWS, p. 2 this LETTER.)

Contract for production of zirconium mill products has been awarded Firth Sterling, Inc., Pittsburgh, by Westinghouse Electric Corp. The \$1.5 million contract provides that over a one year period Firth Sterling will melt zirconium sponge and finish bars, rods and strip in amounts up to 40,000-lbs. a month for use as structural parts and fuel element cladding in nuclear reactor cores. Material will be supplied the USAEC's Bettis plant, in Pittsburgh, which is operated under a prime USAEC contract by Westinghouse. (Other CONTRACT NEWS, p. 3 this LETTER.)

Price of reactor grade zirconium sponge is being reduced from \$11.00 to \$7.50 a pound, and commercial grade sponge is reduced to \$5.00 per lb., effective immediately, by Carborundum Metals Co. Larger volume and increased plant efficiency have made the reductions possible, according to N. C. Bartholomew, vice president and general manager of Carborundum Metals. He noted that in September a plant was brought on stream in Parkersburg, W. Va., which will produce for Carborundum 1,200,000-lbs. annually of zirconium sponge, large portion of which is going to the USAEC under contracts held by the company. (Other PRODUCT NEWS, p. 4 this LETTER.)

Entire patent program of the USAEC is currently being reviewed, and public hearings are planned to enable interested parties to state their views. Requests to make oral statements; comments; and suggestions on the patent program in the nuclear field should be submitted to the USAEC's General Counsel, Wash. 25, D.C., before December 18. (Other PATENT NEWS, p. 3 this LETTER.)

Exports of uranium concentrates from Canada to the U.S. in Sept. 1957 showed value of \$11,867,000; this compares with \$3,365,000 for the same month a year earlier. The figures, recently released by the Dominion Bureau of Statistics, also show that for the first nine months of 1957 exports of uranium concentrates had value of \$80,517,000 as compared with \$32,793,000 for the like 1956 period. (Other RAW MATERIAL NEWS, p. 2 this LETTER.)

ATOMIC ENERGY FINANCIAL NEWS...

NET DOWN DESPITE SALES RISE OF INSTRUMENT MAKER:- Baird-Atomic, Inc., Cambridge, Mass., had gross sales for the year ended September 30th of about \$3,300,000, some 30% greater than the previous year, Davis R. Dewey, president, recently told his stockholders. Dr. Dewey noted, however, that net income was down to about \$18,600, off from the \$165,300 of the previous year. The unusually low net was due to substantial non-recurring charges and other adjustments arising out of the merger of Baird Associates, Inc., and Atomic Instrument Co., on June 1, 1956, he explained and these charges and adjustments were well above projections. Baird-Atomic makes nuclear and other instrumentation and does research and development.

NUCLEAR PRODUCTS FIRM IN MERGER:- Stockholders of Isotope Products, Ltd., Toronto, Ontario, Canada, have now voted approval of merger with Curtiss-Wright (Canada) Ltd. Under the merger plan, Curtiss-Wright Corp. (the U.S. parent firm) will acquire 3 million shares of Isotope Products in exchange for all the shares of Curtiss-Wright (Canada). Change in capitalization of Isotope Products was also OK'd by stockholders to permit authorized outstanding common stock to be increased from 2 million to 5 million shares.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear subjects...

Economics of Atomic Energy, by Mary S. Goldring. Non-technical and highly readable discussion, by a British writer, of nuclear power potentialities, mainly for Britain. 179 pages.--Philosophical Library, Inc., New York 16, N.Y. (\$6.00)

Atomic Power; An Appraisal. Corbin Allardice, Editor. Verbatim report of panel discussion held in Washington, D.C., at 11th annual meeting of the board of governors of the World Bank; prefaced by series of notes on background subjects by Mr. Allardice, who is atomic energy adviser to the Bank.--Pergamon Press, Inc., New York 22, N.Y. (\$3.50)

Uranium in South Africa 1946-1956; Vols. I & II. Joint symposium of Associated Scientific and Technical Societies of South Africa. Vol. I; 546 pages. Vol. II; 483 pages. Written by persons closely associated with the S.A. uranium industry.--Assoc. Sci. & Tech. Soc. of S.A., P.O. Box 5907, Johannesburg, South Africa. (\$20.00)

World Progress With the Atom Since Geneva, by Ashton J. O'Donnell. First hand report of nuclear progress in 17 nations visited by Mr. O'Donnell, who is manager of nuclear developments at Stanford Research Institute.--Public Rel. Dep't., S.R.I., Menlo Park, Calif.

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES:- Vitro Minerals Corp. and Atlas Corp. have submitted a joint proposal to the USAEC to build a 1,000-ton per day uranium mill in the Gas Hills mining area of Wyoming. Vitro Minerals, owned equally by Vitro Corp. of America and Rochester & Pittsburgh Coal Co., was formed in 1955. Since then, a \$2,250,000 exploration and development program, carried out on less than 25% of Vitro's holdings in the Gas Hills, has indicated more than 1,500,000 tons of uranium ore reserves. These holdings include 207 uranium claims which cover over 4,000 acres.

CANADA:- First carload of uranium precipitates has been shipped from Northspan Uranium Mines in the last fortnight; this is the first concentrate to be produced by the company from the first of its three plants to reach production in the Blind River area, N. Ontario. (Northspan holds contract to supply \$275 million in precipitates to Eldorado Mining & Refining, Ltd., at premium prices from its three mills and four mines.) This initial shipment is coming from Northspan's Lake Nordic plant currently processing an average of 2,000 tons per day of ore. Reported recovery rate at the plant is said to be over 90%.

Start of milling operations by Stanrock Uranium Mines are set for Feb. 15, 1958, a company official now states. Although original start-up had been scheduled for November, 1957, unexpected delays due to one shaft encountering excess water had made necessary a revision of the original schedule. Milling capacity of the plant is 3,300 tons per day of ore. Stanrock's contract with Eldorado Mining & Refining calls for delivery of some \$95 million worth of uranium precipitates.

Some 3,200 tons of uranium ores per day are now being treated at the concentrating plant of Consolidated Denison Mines in the Blind River area. Company officials state that ores are coming up to grade, and during November averaged 2.49-lbs. uranium oxide per ton. Recovery in the treatment plant was said to average over 91% during that month.

ATOMIC ENERGY PATENT DIGEST...latest grants & other news...

ISSUED November 26, 1957 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1)

Device for utilizing high energy beams of particles. K. Gund, H. Berger, M. M. Scheer, R. Schittenhelm, inventors. No. 2,814,727 issued to inventors of record. (2) Neutron flux responsive detector, J. V. Werme, J. A. Dever, J. A. Duke, inventors. No. 2,814,731 assigned to Minneapolis-Honeywell Regulator Co., Minn., Minn.

ISSUED November 26, 1957 to GOVERNMENT ORGANIZATIONS:- (1) Retort assembly.

C. C. Loomis, W. J. Ash, inventors. No. 2,814,477 assigned to USAEC. (2) Ion beam collimator. A. S. Landsdorf, Jr., inventor. No. 2,814,728 assigned to USAEC.

ISSUED December 3, 1957 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1)

Radioactive lightning protector. B. L. Donelli, inventor. No. 2,815,395 assigned to United States Radium Corp., New York, N. Y.

ISSUED December 3, 1957 to GOVERNMENT ORGANIZATIONS:- (1) Ceramic fuel element material for a nuclear reactor and method of fabricating. W. H. Duckworth, inventor. No. 2,814,857 assigned to USAEC. (2) Process of producing refractory uranium oxide particles. N. E. Hamilton, inventor. No. 2,814,849 assigned to USAEC. (3) Uranium precipitation process. A. Thunæs, E. A. Brown, H. W. Smith, R. Simard, inventors. No. 2,815,261 assigned to USAEC. (4) Separation process for thorium salts. G. L. Bridger, M. E. Whatley, K. A. Shaw, inventors. No. 2,815,262 assigned to USAEC. (5) Processing of monazite sand. G. D. Calkins, E. G. Bohlmann, inventors. No. 2,815,264 assigned to USAEC. (6) Method of preparing plutonium tetrafluoride. R. E. Heath, A. E. Florin, inventors. No. 2,815,266 assigned to USAEC. (7) Metal recovery process. L. B. Werner, A. F. Hill, inventors. No. 2,815,265 assigned to USAEC. (8) Method for removing sodium oxide from liquid sodium. W. H. Bruggeman, B. G. Voorhees, inventors. No. 2,815,277 assigned to USAEC. (9) Fast neutronic reactor. A. H. Snell, inventor. No. 2,815,319 assigned to USAEC. (10) Isotope conversion device. E. P. Wigner, L. A. Ohlinger, G. J. Young, inventors. No. 2,815,321 assigned to USAEC.

CONTRACT AWARDS...on nuclear jobs...

NUCLEAR ROCKET SITE:- Contract has been received by Sierra Construction Corp., Las Vegas from the USAEC's Albuquerque operations office, in amount of \$2,058,355, to construct the first four buildings for the Nuclear Rocket Propulsion Center at Jackass Flats technical area of the Nevada test site. Contractor expects to complete the facilities in 11-months; they will be used for static rocket propulsion tests. (The award followed recent release by the Bureau of the Budget of some \$9 million in funds for the nuclear rocket project which had been held up for over a year. The rocket project, which had been underway for some time, and had been progressing satisfactorily, had been denied the funds for no apparent reason except decision of the Budget Bureau that project was of low priority and should not get the funds.)

ITALIAN NUCLEAR POWER STATION:- Vitro Engineering Co., division of Vitro Corp. of America, which holds contract for design, engineering and construction of nuclear power station for SIMEA, subsidiary of AGIP Nucleare, has work now underway for this station which will be powered by a pressurized water reactor and will produce 150,000 gross electrical kw. Site of the station is to be at the mouth of the Astura River on the Tyrrhenian Sea, 40-miles southwest of Rome. As of the moment, no reactor or reactor equipment manufacturer or subcontractor has been chosen to design or supply components.

NUCLEAR POWER PLANT:- Agreement has been signed between USAEC and Northern States Power Co., Minn., Minn., under which the Commission will provide \$6 million of a total estimated cost of \$28 million for the 66,000 electrical kw nuclear power plant Northern States will develop, construct and operate. In addition, the Commission will waive fuel use charges up to \$1 million. (The contract was the first under the USAEC's third round of invitations to private industry for proposals to build reactors. Under this third round program, the USAEC pays only research and development costs.) Associated with Northern States in the project are ten other midwest electric utility companies which will contribute \$3,640,000 of research and development costs. These eleven companies make up Central Utilities Atomic Power Associates, a non-profit corporation. Allis-Chalmers Manufacturing Co., Milwaukee, Wisc., will be the principal sub-contractor for research and development, fabrication and construction of the advanced boiling water type reactor which will be used in the plant. To be fueled with slightly enriched uranium, the reactor will incorporate large-volume controlled recirculation of the water coolant-moderator.



NEW PRODUCTS, PROCESSES, INSTRUMENTS...

PRODUCTS FROM MANUFACTURERS:- Four new compounds of nitrogen-15, a stable isotope, are now offered by this processor as an addition to its line of radioactive isotopes. The tagged compounds include 60% nitric acid; ammonium nitrate; potassium nitrate; and ammonium sulfate.--Tracerlab, Inc., Waltham 54, Mass.

New unit for radiation research may be used under standard laboratory conditions; does not require special shielded room, remote handling, auxiliary radiation monitoring, or other special equipment. Manufacturer states the unit, which is made of heavy stainless steel plate filled with pure lead, can safely contain as source up to 25,000 curies of cobalt-60. Sample to be irradiated, which may be up to 10-in. in diameter and length, is placed on tray in front of electrically-driven, lead-filled block. The operator may then, through remote operation, move the sample into the irradiation chamber which automatically locks. Irradiation time, which is pre-set, can range from one minute to 120-hours.--Nuclear Systems, div. of Budd Co., Philadelphia, Pa.

PRODUCT SHIPMENTS:- Some 1,000 dosimeter chargers using transistor circuitry were shipped last week by Universal Transistor Products Corp., New York under orders of the Federal Civil Defense Administration. Shipments were made against orders for 23,199 dosimeter chargers which Universal Transistor holds from the FCDA. Approximately 5,000 units will be delivered in December, and the balance the company will ship in the first quarter of 1958. (The company also has orders from the FCDA for dosimeter pens totalling \$395,532 and for radiological survey meters totalling \$887,546.)

Enriched uranium has now been released to the Spanish and Argentine governments by the USAEC for use in research reactors in those countries. The transfers, under the bi-lateral agreements made by those countries with the U.S., consisted of \$112,000 in enriched uranium sent to Spain, and \$110,000 in enriched uranium sent to Argentina. The Spanish shipment was in the shape of 30 rods designed and fabricated by General Electric; in amount it was 20-kg of uranium enriched to 20% by 4-kg of uranium-235. The Argentine shipment, prepared by Mallinckrodt Chemical Works, was 36-kg of uranium enriched to 20% by 6-kg of uranium-235; it is to be converted to fuel elements.

PRODUCT DEVELOPMENT:- Portable transfer instrument for measuring radiation exposure dosage has been built by National Bureau of Standards, Washington, under an agreement made at the 1956 meeting of the International Commission on Radiological Units and Measurements. The equipment has a small cavity chamber, a pair of diaphragms for accurately defining radiation beam size, and a pair of charge-compensating capacitors. Duplicate set of the equipment was made for UNESCO.

PROCESSES:- Savannah River Plant, operated by DuPont under prime USAEC contract, is to develop technology for reprocessing spent fuels from nuclear power reactors, under recent USAEC decision, until volume of work interests private chemical industry in the U.S.

Now working on the USAEC's plutonium fuels program is the Mound Laboratory, which is operated by Monsanto Chemical Co., as USAEC contractor. Work at Mound is in conjunction with that underway at Argonne National Laboratory and Los Alamos Scientific Laboratory.

New zirconium purification plant of Wah Chang Corp., Albany, Ore., recently started up, with capacity of 13,000-lbs per day, has more than double the output of the facilities at Albany which the company has been leasing from the Bureau of Mines. Wah Chang will work with Oregon Metallurgical Co. in filling recent order received by Oregon Metallurgical from Westinghouse Electric for some \$4 million in zirconium ingots.

MANUFACTURERS' LITERATURE:- Recently revised radiochemical price list of Research Specialties Co., Berkeley 7, Calif., shows 101 compounds including several newly added purines, pyrimidines, and ring labeled aromatics.

New catalog of Radiation Instrument Development Laboratory, Chicago 21, Ill., shows this company's entire line.

Radioisotope Equipment for Medical Use is title of new catalog recently issued by Tracerlab, Inc., Waltham 54, Mass.

Brochure describing the facilities and work accomplished by its atomic power department has been issued by United Shoe Machinery Corp., Beverly, Mass. It may be obtained on request.

### ATOMIC ENERGY BUSINESS NEWS...

FIRST U. S. COMMERCIAL NUCLEAR POWER STATION IN OPERATION:- Nuclear reactor at the Shippingport, Pa., nuclear power plant has "gone critical", and before the end of this year it is expected that the \$110,000,000 station will be feeding power into the western Pennsylvania power grid. Under contract with the USAEC, Westinghouse Electric Corp. designed and constructed the nuclear portions of the plant. Duquesne Light Company, which will operate the entire plant for the USAEC, contributed \$5 million toward the nuclear portion of the plant, and constructed at its own expense the turbine generator portion. At full power the plant will produce 60,000 electrical kilowatts. Duquesne's contract with the USAEC permits it to buy energy produced for 8 mills per kilowatt hour. According to Hyman G. Rickover, chief of the USAEC's naval reactors branch, and who had overall direction of construction of Shippingport, the facility will produce energy at approximately a 65 mill cost, taking into account the extraordinary expenses connected with the reactor such as research, feasibility tests, production of special parts, etc.

LICENSES & PERMITS ISSUED:- License has been issued by the USAEC to University of California, Berkeley, to operate 100-mw reactor for research and training purposes ....Permit is to be issued by the USAEC to University of Florida, Gainesville, Fla., for construction of low power nuclear reactor for training purposes. (The reactor is to be a 10 kilowatt (heat), light water cooled, graphite moderated facility, with flat fuel plates of uranium-aluminum alloy. Designer, prime contractor and initial operator will be General Nuclear Engineering Corp., Dunedin, Fla.)

### NUCLEAR WORK ABROAD...

GREAT BRITAIN:- Construction work is now underway on the £20 million Winfrith Heath nuclear research station of the U. K. Atomic Energy Authority. Work at the new experimental station will be concerned entirely with the development of new types of nuclear reactors, and will supplement the work of the Atomic Energy Research Establishment, Harwell. Two prototype reactors for use in surface ship propulsion plants are scheduled for construction at the new station, as is also a high temperature gas cooled breeder reactor

New Geiger counter tube, type GM4LB, has been developed by The General Electric Co., Ltd., Magnet House, Kingsway, London WC2. Specially designed for measurement of minute amounts of radioactivity, the tube, with a thin duralumin window 1-in. in diameter, is said to keep background responses to as low as 0.4 counts per minute when used in an anti-coincidence network.

WEST GERMANY:- A five year plan for the development of nuclear power reactors for the country will supplement the research and material testing reactors to be delivered by the U. S. and Britain. According to Dr. Balke, the Atomics Minister, within the next five years four or five reactors with a total capacity of 500 MW are to be built at a cost of approximately \$232 million in close cooperation with foreign concerns. So far, the only order placed has been by a group of seven municipal power companies with Krupp-Brown-Boveri for a 15 MW experimental unit. Another order, that for the AFM-Mitchell reactor, has been cancelled.

### MEETINGS, COURSES, CONFERENCES...

MEETINGS:- In a series of meetings in Washington last week, ninety-one firms and individuals were invited to give their views on nuclear power projects to the USAEC. Meetings had been prompted by complaints of utilities, engineering firms and others that Government should do something about problems now afflicting nuclear power business in the U.S. Invited by the USAEC to air their complaints were representatives of 54 utilities; 25 equipment manufacturers; and 32 architect-engineers and consultants. The meetings were closed.

SYMPOSIUM:- Symposium on Radiochemical Analysis is being sponsored by the American Chemical Society's analytical chemistry division at the meeting next April of the Society in San Francisco. Program chairman is E. C. Freiling, U. S. Naval Radiological Defense Laboratory, San Francisco 24, Calif.

Sincerely,

The Staff,  
ATOMIC ENERGY NEWSLETTER

